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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/585,401	02/12/2007	Henri-Louis Schwal	0559-1119	2537
<small>466</small> YOUNG & THOMPSON 209 Madison Street Suite 500 ALEXANDRIA, VA 22314			<small>7590</small> EXAMINER CERNOCH, STEVEN MICHAEL	
			ART UNIT 3752	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/585,401

Applicant(s)

SCHWAL ET AL.

Examiner

STEVEN CERNOCH

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 February 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12 and 15-21 is/are rejected.
- 7) ☒ Claim(s) 13 and 14 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 February 2007 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SF/08)
Paper No(s)/Mail Date 7/7/2006.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

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DETAILED ACTION

Allowable Subject Matter

Claims 13 and 14 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim Objections

Claim 19 objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim should refer to other claims in the alternative only. See MPEP § 608.01(n). Accordingly, the claim has not been further treated on the merits.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 2, 8, 9, 15-18 and 20-21 rejected under 35 U.S.C. 102(b) as being anticipated by Abplanalp et al. (US Pat No 6,062,493).

Re claim 1, Abplanalp et al. shows a nozzle (Column 3, line 35) for spraying a liquid into the atmosphere, characterized in that it comprises: a secondary jet (line 36)

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connected to means (lines 64) for supplying said liquid and including means for effecting a first fractional distillation of said liquid and an expansion chamber (column 4, line 16); a principal jet (column 3, line 37) connected to means for generating a gaseous flow, including means for effecting a second fractional distillation of said liquid and an outlet orifice (column 4, line 22) to the atmosphere; and means (column 3, line 52) for connecting said secondary jet to said principal jet, connecting the expansion chamber and the means for effecting the second fractional distillation of said liquid.

Re claim 2, Abplanalp et al. shows that the secondary jet (column 3, line 36) is in the form of a cylinder, the central portion of which is occupied by the principal jet (line 37), which also has a cylindrical configuration, the annular cross-sectional space created thereby forming the expansion chamber (column 4, line 16).

Re claim 8, Abplanalp et al. shows that the means (column 3, line 52) for connection the secondary jet to the principal jet comprise a plurality of conduits (column 4, line 12) disposed radially between the expansion chamber (line 16) and the cylindrical portion (column 3, line 64) of the second venturi.

Re claim 9, Abplanalp et al. shows that the expansion chamber (column 4, line 16) has sudden variations in thickness along the longitudinal axis.

Re claim 15, Abplanalp et al. shows that it comprises: a spray nozzle; means for supplying gas under pressure, said means being connected to the principal jet means for supplying liquid, said means including a reservoir (column 3, line 37) containing said

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liquid, the orifice (line 66) of which is connected to the secondary jet; and means (column 1, 53-56) for checking and regulating the fluids.

Re claim 16, Abplanalp et al. shows that the reservoir (Fig. 1, 11) is placed at a level such that the orifice (Fig. 3, 18) of said reservoir is lower than the spray nozzle (30).

Re claim 17, Abplanalp et al. shows method of spraying a liquid into the atmosphere, said method comprising steps which consist of: effecting a first fractional distillation of said liquid by suction through a conduit (Fig. 1, 14), Which has a first Venturi terminating in an expansion chamber (34) which is subjected to a negative pressure; and effecting a second fractional distillation of said liquid by suction through means (18) for connection the expansion chamber (34) to a second Venturi (38) supplied by a gaseous flow under pressure.

Re claim 18, Abplanalp et al. shows that the gas supply pressure of the second Venturi (Fig. 1, 14) is regulated so that the pressure prevailing at the outlet of said second Venturi is lower than the pressure prevailing in the expansion chamber (column 1, lines 53-56).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

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invention was made to a person having ordinary skill in the art to which said subject matter pertains.

Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 19 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Abplanalp et al. (US Pat No 6,062,493).

Re claim 19, Abplanalp et al. shows the claimed invention except that the pressure of the gaseous flow in the principal jet is between 2.5 bars and 3.5 bars, preferably 3 bars; and the diameter of the calibrated cylindrical portion of the first Venturi is between 0.3 mm and 1 mm, permitting a delivery of liquid of between 15 ml/min and 40 ml/min. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use said pressure and said diameter, since it has been held that where the general conditions of a claim are disclosed in the prior art,

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discovering the optimum or workable ranges involves only routine skill in the art. In re Aller, 105 USPQ 233.

Re claim 21, Abplanalp et al. shows that it's for disinfecting premises used for medical, paramedical or food-processing purposes. It has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the structural limitations. Ex parte Masham, 2 USPQ2d 1647 (1987).

Claims 3-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Abplanalp et al. (US Pat No 6,062,493) in view of Cherry et al. (GB 727,836).

Re claim 3, Abplanalp et al. does not show that the first and second fractional distillation means comprise a first and second Venturi respectively.

However, Cherry et al. does show a first and second Venturi (Fig. 1, 18 and 20).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to have the motivation to modify the nozzle of Abplanalp et al. with the system of Cherry et al. as it is important in the case of liquids containing solids (column 2, lines 2-6).

Re claim 4, Abplanalp et al. shows that the first Venturi (Fig. 4, 38) comprises a tapering part (32) followed by a calibrated cylindrical portion (31) terminating in the expansion chamber (34).

Re claim 5, Abplanalp et al. shows that the tapering part (Fig. 4, 32) is in the form of a truncated cone, which is adapted to the calibrated cylindrical portion (31) so that the

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reduction in cross-section between the supply conduit (18) and the calibrated cylindrical portion is discontinuous.

Abplanalp does not show the intermediary of a bearing.

However, Cherry et al. does show a bearing (Fig. 1, 11).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to have the motivation to modify the nozzle of Abplanalp et al. with the bearing of Cherry et al. for the delivery process (column 2, lines 20-23).

Re claim 6, Abplanalp et al. shows that the calibrated cylindrical portion (Fig. 4, 31) terminates in the expansion chamber (34) in a recessed manner relative to the wall of said expansion chamber.

Re claim 7, Abplanalp et al. shows that the second Venturi (Fig. 4, 38) includes a tapering part (32) followed by a cylindrical portion (34) terminating in the atmosphere through the outlet orifice (34).

Claims 10-12 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Abplanalp et al. (US Pat No 6,062,493) in view of Wanson et al. (FR 2,481,782).

Re claim 10, Abplanalp does not show that the expansion chamber has the smallest thickness in the vicinity of the connection conduits.

However, Wanson et al. does teach that the expansion chamber (Fig. 1, 4) has the smallest thickness in the vicinity of the connection conduits (10).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to have the motivation to modify the nozzle of Abplanalp et al. with the

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conduits of Wanson et al. because at the time the invention was made these two elements were art recognized equivalents.

Re claim 11, Abplanalp et al. does not show that it additionally comprises means for affecting a third fractional distillation of said liquid.

However Wanson et al. does teach a third fractional distillation of said liquid (Fig. 1, 7).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to have the motivation to modify the nozzle of Abplanalp et al. with the distillation of Wanson et al. since it is known in the art to use fractional distillation.

Re claims 12 and 20, Abplanalp et al. does not show that said third fractional distillation means comprise an ultrasonic resonator and a resonance chamber connected to the outlet orifice in the axis of the principal jet.

However Wanson et al. does teach comprise an ultrasonic resonator (Fig. 1, 5) and a resonance chamber (11) connected to the outlet orifice in the axis of the principal jet.

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to have the motivation to modify the nozzle of Abplanalp et al. with the chamber of Wanson et al. since ultrasonic resonance is known in the art.

Conclusion

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to STEVEN CERNOCH whose telephone number is (571)270-3540. The examiner can normally be reached on IFP.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Len Tran can be reached on (571)272-1184. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/S. C./

Examiner, Art Unit 3752

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/Len Tran/

Supervisory Patent Examiner, Art Unit 3752